

CATALYTIC PARTIAL OXIDATION PROCESSOR WITH HEAT EXCHANGER FOR CONVERTING HYDROCARBON FUELS TO SYNGAS FOR USE IN FUEL CELLS AND METHOD

Abstract

ABSTRACT OF THE DISCLOSUREA catalytic partial oxidation processor comprising at least one catalytic partial oxidation reactor disposed in a shell having an inlet and outlet such that heat from partial oxidation in the reactor transfers from the reactor to heat exchange fluid in the shell. The heat transfer serves to keep the precatalyst zone of the partial oxidation reactor cool and the post catalyst section of the partial oxidation reactor hot while also providing an efficient heat recovery system. A system for producing electric power comprises such a catalytic partial oxidation processor and a fuel cell disposed for receiving the exit gas stream and consuming the hydrogen to produce electric power. Corresponding methods are also disclosed.